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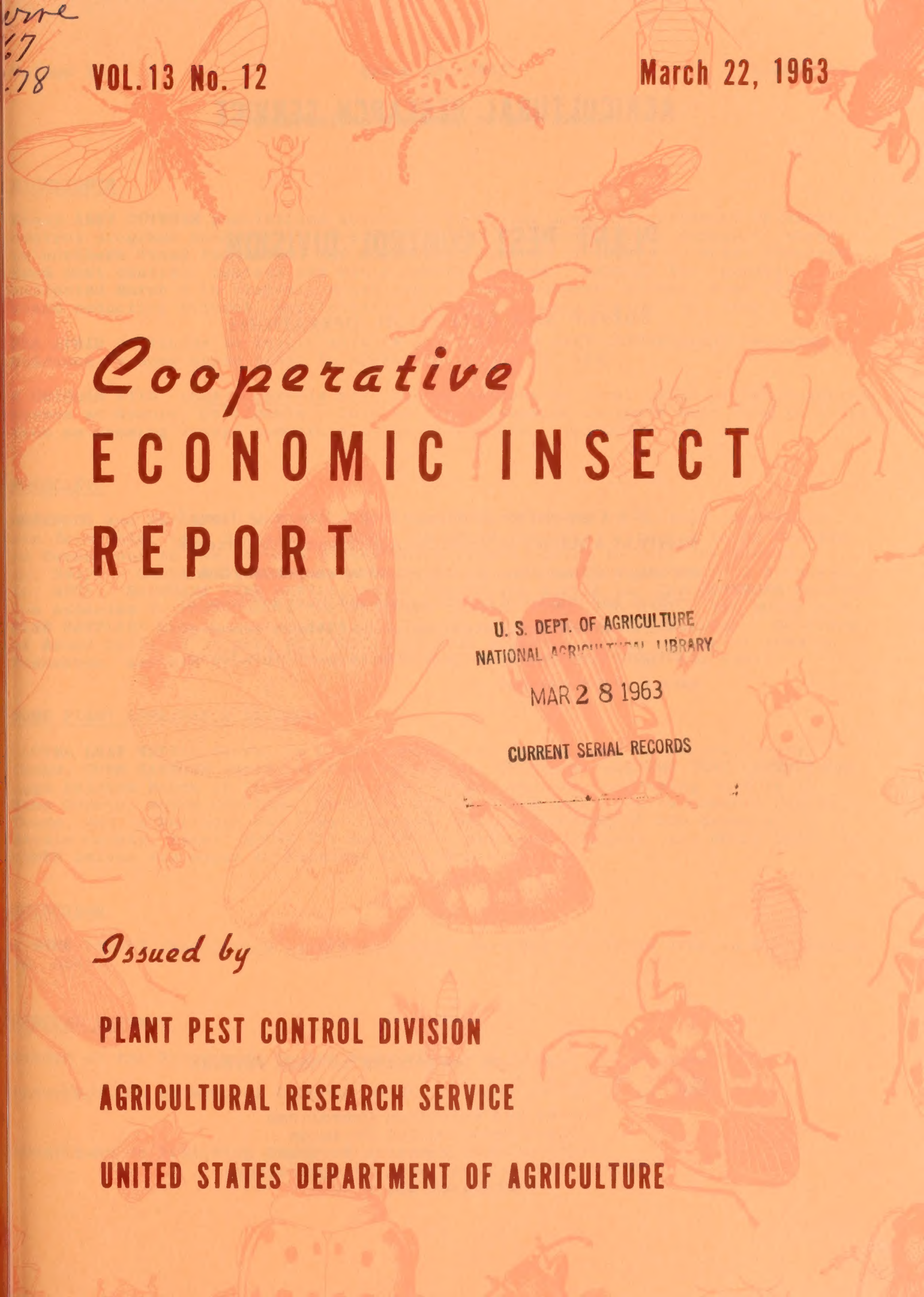

Cooperative ECONOMIC INSECT REPORT

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PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
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Volume 13 March 22, 1963 Number 12

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Heavy ARMY CUTWORM populations active in localized areas of northwest Oklahoma; control programs successful. The pest caused scattered, light damage to wheat in northern Texas Panhandle, and additional reports of damage to wheat received from west central, central and south central Kansas. HESSIAN FLY puparia collected March 6 in central, south central and southwest Kansas; some plant stand reduction evident, particularly in early planted fields. (p. 251).

PEA APHID continues to injure alfalfa (p. 252) and TENT CATERPILLARS becoming a nuisance on some shade trees in areas of Arizona (p. 255).

A CHIGGER MITE (Euschongastia sp.) became serious on local group of thoroughbred horses at Sonora, California. This is first instance chiggers have come to attention as causing damage commercially in California. (p. 257).

FORECASTS

GREENBUG and PEA APHID may build up rapidly in Oklahoma if weather conditions are favorable. (pp. 251-252). WHEAT CURL MITE dispersal expected to be delayed in Kansas due to very severe winter which reduced mites to very low levels. (p. 251). GRAPE ROOT BORER apparently is of increasing importance in Arkansas. (p. 252). SOUTHERN PINE BEETLE, BLACK TURPENTINE BEETLE and ELM SPANWORM epidemics expected to continue in the Southern States. (pp. 253-255). TIP MOTHS and PINE SAWFLIES may cause increased damage in 1963 in Arkansas.(p. 254). Outbreak of Brood XXIII of 13-year PERIODICAL CICADAS expected during spring of 1963 in Tennessee; western area will be main area of infestation. (pp. 258-259).

SOME FIRST APPEARANCE RECORDS

CLOVER LEAF WEEVIL larvae in Glenn County, California, and in Canyon County, Idaho; CORN EARWORM larvae in Choctaw County, Oklahoma; EASTERN TENT CATERPILLAR eggs hatched March 13 in Brazos County, Texas, and webs beginning to form in Wake County, North Carolina; COTTONY-CUSHION SCALE appearing in Cameron County, Texas, and in Maricopa and Yuma Counties, Arizona; HARLEQUIN BUG damaging in Zavala County, Texas; HOUSE FLY active in northwest Arkansas; and HOLLY LEAF MINER larvae and pupae in Portland area of Oregon.

DETECTION

A PINE SAWFLY (Neodiprion taedae linearis) recorded for first time in Mississippi. (p. 254).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 256).

Interceptions of Special Interest at U. S. Ports of Entry. (p. 260).

(Continued on following page)

Summary of Insect Conditions in the United States - 1962.

Cotton Insects - (p. 262).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in Ohio in 1961. Soybeans - p. 271, Corn for Grain - 272, Wheat - 273, Hay - 274.

Insects Not Known to Occur in the United States - A Spotted Flesh Fly (Wohlfahrtia magnifica (Schiner)). (p. 275).

Reports in this issue are for week ending March 15, unless otherwise indicated.

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WEATHER BUREAU 30-DAY OUTLOOK

MID-MARCH TO MID-APRIL 1963

The Weather Bureau's 30-day outlook for the period mid-March to mid-April calls for temperatures to average well above seasonal normals over the eastern half of the Nation, except for near to slightly below normal from the Great Lakes eastward to New England. Below-normal temperatures are predicted for the entire area lying west of the Continental Divide. In the remainder of the Nation, near normal averages with large fluctuations are in prospect. Precipitation is expected to exceed normal over most of the Nation, except for near normal amounts in the northern border States west of the Great Lakes and in the extreme Southeast. Over central and southern areas thundershowers are expected to occur more frequently than normal.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING MARCH 18

For the second consecutive week, much of the eastern half of the Nation received heavy to excessive rains. Little, if any, precipitation fell over the southern Great Plains, but near or above-normal precipitation fell throughout much of the Far West and the central and northern Great Plains from a trio of storms. Very little difference in the weekly temperature pattern could be seen from the previous week. Cool weather held sway over the Far West and warm Gulf air kept the eastern half, except for the more northern states, above seasonal temperature levels. Nonfreezing minima on the final 2 days aided in reducing the snow cover in the Great Lakes States by as much as 50 percent in some areas. Excessive rainfall on the 11th and 12th over the Tennessee Valley and the central and southern Appalachians led to local flooding. The severe storms also spawned at least five tornadoes in Tennessee, two in Alabama and one in Mississippi. At least four deaths, several injuries and extensive property damage was attributed to the twisters. During a 24-hour period ending at 5 p.m. on the 12th, Jeremiah, Kentucky, was deluged by 7.28 inches of rain.

A storm which spread snow and rain over most of the northern half of the Far West on the 11th and 12th produced blizzard conditions across Colorado into western areas of Kansas and Nebraska on the 12th. Snowfall amounts ranged up to 14 inches in east-central Colorado and 10 inches in northwest Kansas.

(Continued on page 261)

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Additional reports of damage to wheat received from Ness County (west central); Barton and Rice Counties (central); and Harper County (south central). (Gates). OKLAHOMA - Heavy populations were active in localized areas of northwest part of State; however, late reports indicate control programs successful and that buildup of previous week is under control. (Okla. Coop. Sur.). TEXAS - Scattered, light damage to wheat occurring in northern panhandle area. One report of controls being needed has been received. (Newton).

GREENBUG (Schizaphis graminum*) - OKLAHOMA - Moderate counts of 25-50 per linear foot observed in Yuba area, Bryan County. Wheat has been fertilized, is in good condition and no ill effects are showing; however, under ideal weather conditions greenbug could become problem and situation warrants close surveillance. Counts of 20-25 per linear foot noted in Marshall and Carter Counties; populations remain noneconomic in other areas. (Okla. Coop. Sur.). GEORGIA - Infestations continue light in small grain in several northwestern counties. (Johnson, March 8).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - CALIFORNIA - Nymphs and adults medium to heavy on barley plantings in Yolo County, in Yuba City area of Butte County and Willows in Glenn County. (Cal. Coop. Rpt.). OKLAHOMA - Light populations observed in south central and southwestern areas. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Counts on experimental oat plots in Brazos County ranged 125-200 per linear foot. (Randolph).

ENGLISH GRAIN APHID (Macrosiphum avenae*) - OKLAHOMA - Moderate counts of 25-50 per linear foot observed in Yuba area, Bryan County; lighter counts, 15-25 per linear foot, noted in Davis area, Murray County. Occasional to very light counts (up to 8 per linear foot) noted in Garvin-McClain-Cleveland County area. Except in Yuba area, this species more common than S. graminum; caution should be observed to assure proper identification. Light, scattered counts of M. avenae reported in remainder of southern part of State. (Okla. Coop. Sur.).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Puparia found in wheat samples collected March 6 in Ellis, Russell and Rush Counties (central); Pawnee County (south central); and Hodgeman County (southwest). Counts ranged from trace infestations to 90 percent of plants infested plus plant stand reduction. Most infested plants had not winterkilled; however, in Rush, Ellis and Russell Counties, some plant stand reduction evident, particularly in early planted fields. (Somsen, Peters).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Severe winter weather killed back almost all green wheat vegetation in southwestern area of State. This also reduced mite populations to very low levels and may have eliminated them in many instances. This will delay early spring dispersal of the mites and virus. Samples collected March 4-6. (Somsen, Peters).

A WEEVIL (Brachyrhinus rugosostriatus) - CALIFORNIA - Light in grass sod in McKinleyville, Humboldt County. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Overwintering egg populations in 3 alfalfa fields in New Castle County were 11, 15 and 193, respectively, per 100 old, attached stalks on March 11. (Burbutis). GEORGIA - Eggs noted in alfalfa stems in several northwestern Counties. No larvae observed to March 7. (Johsnon).

CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Larvae active on stems and crowns of legumes at Melba, Canyon County; distribution spotty. (Bechtolt). CALIFORNIA - Larvae light on clover (Trifolium sp.) in Willows, Glenn County. (Cal. Coop. Rpt.).

* See CEIR 13(5):84.

AN EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Present in some fields in Pinal County; also very numerous in Maricopa County. (Ariz. Coop. Sur.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OKLAHOMA - Light larval counts noted in alfalfa checked in Bryan, Murray, Garvin, Cleveland, Beckham, Washita and Grady Counties. (Okla. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum*) - ARIZONA - Continues to injure alfalfa in Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.). OKLAHOMA - Light populations observed in alfalfa in southeastern, south central and east central areas. Present populations reproducing; could build up quite rapidly under favorable conditions. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Only occasional specimens found in alfalfa checked in southeastern and south central areas. (Okla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - OKLAHOMA - First activity of season reported from Choctaw County; first-stage larvae averaged 0.1 per square foot of crown area in alfalfa. This is approximately a month earlier than in 1962. (Okla. Coop. Sur.).

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - First hatch of eggs noted on peach March 13 in Brazos County. (Thomas).

COTTONY-CUSHION SCALE (Icerya purchasi) - TEXAS - Spotted infestations appearing on a few citrus trees in Cameron County. (Texas Coop. Rpt., Day). ARIZONA - Appearing in some citrus groves in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

GRAPE ROOT BORER (Vitacea polistiformis) - ARKANSAS - Continues to be of apparently increasing importance. Research investigations underway. Some vineyards are badly damaged; extent of damage difficult to determine as other factors are associated with problem. Vines must be pulled and roots examined to make counts, thus plants are destroyed. (Ark. Ins. Sur.).

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Continues to increase in Maricopa County, especially on plantings near desert. Few appearing in potatoes in Queen Creek area. (Ariz. Coop. Sur.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - TEXAS - Moderate adult populations attacking emerging potatoes in Zavala County. (Harding).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Adults causing light foliage damage to emerging potatoes in Zavala County. (Harding).

A SPIDER MITE (Tetranychus sp.) - ARIZONA - Appearing on melons in Yuma County. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Infestations continue light on cabbage in Thomas and Colquitt Counties. (Johnson).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Medium populations beginning to damage mustard in Zavala County with advent of favorable weather. (Harding).

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* See CEIR 13(5):84.

BLACK CUTWORM (Agrotis ipsilon) - CALIFORNIA - Larvae medium to heavy on leaves of sugar beets and in soil at Irvine, Orange County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Flight now in progress. Some injury to sugar beet seed occurring in Maricopa County. (Ariz. Coop. Sur.).

A THRIPS (Frankliniella occidentalis) - TEXAS - Counts averaged 160 per 10 onion plants in Zavala County. (Harding).

CUTWORMS - NEVADA - Undetermined species medium on garlic in Mason Valley, Lyon County; controls required. (Batchelder).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy on strawberry plants in Sunnyslope, Riverside County. (Cal. Coop. Rpt.).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - OREGON - Light populations reported in strawberry fields in northern Willamette Valley during early March. (Capizzi).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Feeding damage light on tobacco in plant bed in several southern counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Feeding damage light on tobacco in plant bed in several southern counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Populations increased during late summer and fall of 1962. Examination of infested trees on Shoal Creek and Talladega Districts, Talladega National Forest, in December 1962 and February 1963 indicates some beetle mortality due to cold weather. Impact of this mortality on present epidemic will not be known until later in 1963. GEORGIA - Outbreaks on Chattooga and Tallulah Districts, Chattahoochee National Forest, continuing. Severe cold during past winter had no significant effect on brood survival. Mortality found to be spotty and scattered; ranged 0-80 percent in individual trees. Estimated 2,740 infested trees found on Uncle Remus District, Oconee National Forest, during January survey. In addition, an estimated 1,254 infested trees present on private land within District. Since March 1962, 500,000 infested trees cut and treated by Georgia Forestry Commission; trees contained 4 million board feet of sawtimber and 7,500 cords of pulpwood. Most severe infestation centered in Hall, Rabun and Habersham Counties (northeast) and Harris, Heard, Troup, Upson and Talbot Counties (southwest). NORTH CAROLINA - Killed an estimated 200,000 trees in Piedmont area during 1962. In addition, several thousand trees killed in western portion of State. SOUTH CAROLINA - Activity continuing on General Pickens Ranger District, South Carolina National Forest. Estimated 400,000 trees killed in Piedmont area during latter half of 1962. TEXAS - Approximately 2,100 active brood trees present over area bounded by U. S. Highway 190, U. S. Highway 90, the Neches River and the Trinity River. No indication of any infestations between this area and boundary of 1962 epidemic area on previous flight. Examination of infestation during winter of 1962-1963 indicates beetle broods are vigorous and that potential exists for continued activity during 1963. (South. For. Pest Rpt., March 12).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - Infestations causing significant losses of residual timber following logging on Redlands District of Oconee National Forest, GEORGIA. Increased beetle activity in drought-weakened trees in naval stores areas of south GEORGIA and north FLORIDA has forced some operators to curtail naval stores activity. Populations continue at epidemic level following logging in ALABAMA, LOUISIANA, MISSISSIPPI and TEXAS. Localized increases in activity were reported from Alabama and Texas. (South. For. Pest Rpt., March 12). ARKANSAS - Some activity reported. Normal increase in activity expected during warmer months. Some salvage being done in infested spots; control can usually be handled through proper salvage to reduce beetle populations. (Ark. For. Pest Rpt., March).

ENGRAVER BEETLES (Ips spp.) - Activity increased in FLORIDA as result of drought-damaged timber in association with naval stores activity; considerable salvage has been done by private landowners. Populations have declined in LOUISIANA and TEXAS with increased rainfall and cooler weather, after becoming very aggressive in late summer 1962. (South. For. Pest Rpt., March 12). ARKANSAS - Activity remains static; normal increase in activity may be expected during warmer months. Some salvage underway in infested spots; control can usually be handled through proper salvage to reduce populations. (Ark. For. Pest Rpt., March).

REPRODUCTION WEEVILS - ARKANSAS - Activity by Hylobius pales, Pachylobius picivorus and Pissodes nemorensis relatively low or nonexistent through past winter. Up to early February 1963, only occasional specimen of any of the 3 species obtained. Beginning in early February, numbers of P. nemorensis increased in the field. Following brief warm period in early March, P. nemorensis and H. pales became quite active. (Ark. For. Pest Rpt., March).

TIP MOTHS - ARKANSAS - No adult emergence observed as yet; however, emergence will begin as soon as weather conditions are favorable. Heavy infestations were reported in localized areas during late summer and fall of 1962. These areas should be watched for heavy activity in spring and summer of this year. Numbers of parasites and predators were not as high in 1962 as in some years; if this trend continues in 1963, damage could be more of a problem. (Ark. For. Pest Rpt., March).

BALSAM WOOLLY APHID (Chermes piceae) - NORTH CAROLINA - Estimated to have killed approximately 10 percent of Fraser fir in Mount Mitchell State Park and adjacent areas. Plans have been made to survey spruce-fir type in southern Appalachians during 1963 to determine area infested. (South. For. Pest Rpt., March 12).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NORTH CAROLINA - Infesting loblolly pine at a location in Moore County. (Jones).

PINE SAWFLIES (Neodiprion spp.) - FLORIDA - Recent infestation of N. excitans reported on 4,000 acres of mature loblolly pine in Marion County. N. lecontei reported defoliating 120-acre longleaf pine plantation near Milton, Santa Rosa County. Observations indicate both these species continue to feed throughout winter in State. MISSISSIPPI - Species reported defoliating loblolly pine in Winston County during March 1962 identified as N. taedae linearis. This is first known report of species from State. (South. For. Pest Rpt., March 12). ARKANSAS - Weather conditions in October and November 1962 were favorable to activity and oviposition, primarily by N. taedae linearis. Although hatching not yet reported, it can be expected to begin early in March. As infestations were heavier in 1962 than in recent years, special attention should be given hazard areas. (Ark. For. Pest Rpt., March).

A SPIDER MITE (Tetranychus sp.) - COLORADO - Caused considerable damage to pine in shelter belt at Dove Creek, Dolores County. (Hantsbarger).

ELM SPANWORM (Ennomos subsignarius) - Based on winter surveys in GEORGIA, it appears control will be necessary during 1963 on approximately 2,100 acres on National Forest and State Parks. Infestation has spread steadily north and east; presently centered in Rabun and Habersham Counties. Indications are that infestation in northern Georgia is beginning to break up; egg masses are generally smaller and intensity of infestation has lessened. Egg mass surveys in NORTH CAROLINA and SOUTH CAROLINA indicate continuation of north and east extensions of present infestation and continued reduction of populations in older infested areas. Moderate to heavy defoliation may occur in western Swain County and along Macon

County line, North Carolina, with considerable heavy defoliation expected in mountains of Macon County. Light to heavy defoliation expected to occur in Oconee County, South Carolina. (South. For. Pest Rpt., March 12).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - FLORIDA - Infesting native *Prunus* spp. at Weirsdale (March 7) and at Ocala (March 8), Marion County. (Fla. Coop. Sur.). NORTH CAROLINA - Webs beginning to form in Wake County. (J. F. Greene).

TENT CATERPILLARS (*Malacosoma* spp.) - ARIZONA - Becoming a nuisance in Pinal, Pima and portions of Maricopa Counties on some shade trees. (Ariz. Coop. Sur.).

TEXAS LEAF-CUTTING ANT (*Atta texana*) - TEXAS - Activity over State has increased notably, with many requests for information and controls being received. (Newton).

A GALL WASP (*Callirhytis punctata*) - NORTH CAROLINA - Pupae and emerging adults noted on oak twigs at a location in Caldwell County. (Jones).

VARIEGATED CUTWORM (*Peridroma saucia*) - ARIZONA - Cutworms, mainly this species, damaging annuals in Maricopa County home gardens. (Ariz. Coop. Sur.).

GREEN PEACH APHID (*Myzus persicae*) - FLORIDA - Ranged light to heavy on *Chrysanthemum* sp. at Alva, Lee County (March 4), and at Pine Hills, Orange County (March 5). (Fla. Coop. Sur.). PENNSYLVANIA - Quite general on gardenia, cineraria and violet plants in a greenhouse at Pittsburgh, Allegheny County. Becoming difficult to control. (Udine, March 5).

COCCIDS - ARIZONA - *Icerya purchasi* appearing on some shrubs in Gila County. (Ariz. Coop. Sur.). IDAHO - *Aspidiotus hederae* infested leaf of dwarf lemon tree received for injury identification from Caldwell, Canyon County, March 8. (Bechtolt). FLORIDA - *Pseudaonidia clavigera* infested *Ligustrum* sp. and *Camellia* sp. at St. Petersburg, Pinellas County (Feb. 25), and *Toumeyella liriodendri* severely infested *Magnolia* sp. at Zephyrhills, Pasco County (Feb. 10). (Fla. Coop. Sur.). PENNSYLVANIA - *Rhizoecus* sp. very numerous on roots of *Saintpaulia* spp. in large greenhouse at Bethayres, Montgomery County, February 6. (Menusan).

A BARK BEETLE (*Xyleborus morstatti*) - FLORIDA - Infested orchidtree (*Bauhinia* sp.) at Clewiston, Hendry County (March 5). (Fla. Coop. Sur.).

A POWDER-POST BEETLE (*Lyctus* sp., probably *africanus*) - IDAHO - Collected from ornamental bamboo at Kimberly, Twin Falls County, March 14. (Evans).

HOLLY LEAF MINER (*Phytomyza ilicis*) - OREGON - Heavily infested scattered holly plantings in Portland area, Multnomah County. Samples taken March 15 indicate two-thirds of larvae had pupated, with no adults observed on this date. (Larson).

EASTERN LUBBER GRASSHOPPER (*Romalea microptera*) - FLORIDA - Severe on croton (*Codiaeum* sp.) at Homestead, Dade County (March 8). (Fla. Coop. Sur.).

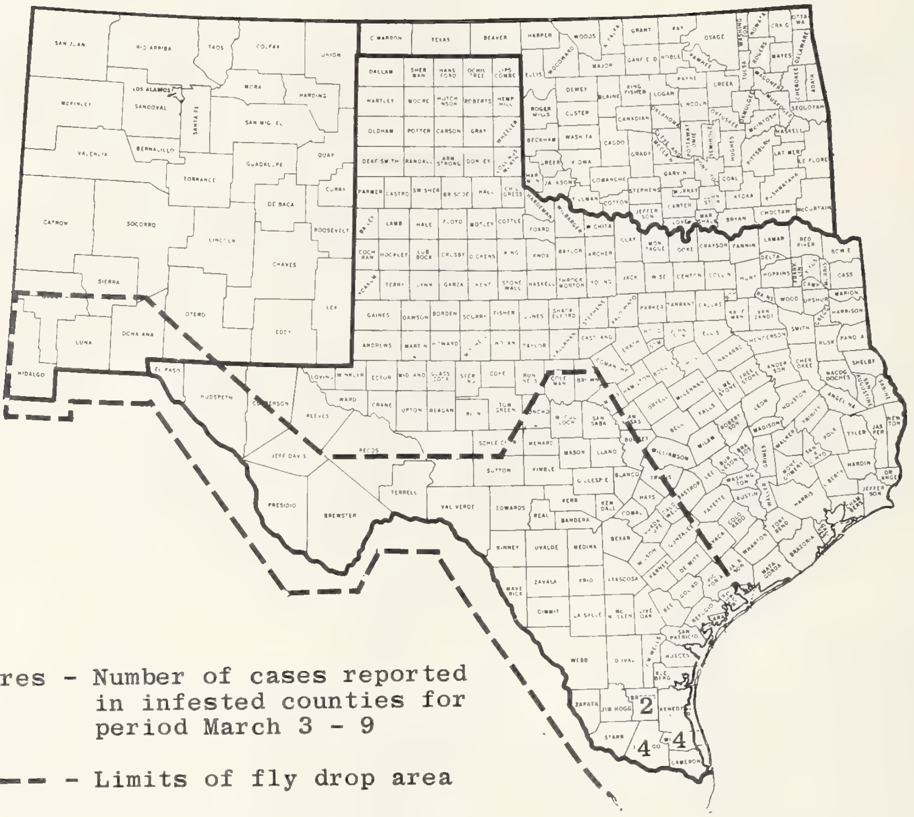
SPRUCE SPIDER MITE (*Oligonychus ununguis*) - MARYLAND - Moderate numbers of eggs found on several large spruce trees in College Park, Prince Georges County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

A MOSQUITO (*Aedes vexans*) - FLORIDA - Collected on human at Gainesville, Alachua County (March 11); minor nuisance near dusk. (Fla. Coop. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period March 3-9, a total of 10 screw-worm specimens were submitted for identification from 3 counties in southern TEXAS. These identifications are in one area at junction of 3 counties. Every effort, including extra aerial releases and intense inspection and treatment of animals, is being used to eliminate small remaining population. A reduction of 5,000 square miles has been made in northern portion of fly release area, as determinations have been made that screw-worms no longer exist in area. Additional reductions will be made as evidence indicates eradication in portions of fly release area. A total of 101,227,450 sterile screw-worm flies was released during the period March 3-9. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 3 - 9

▬ ▬ ▬ - Limits of fly drop area

NORTHERN CATTLE GRUB (Hypoderma bovis) - NORTH CAROLINA - Of 30 larvae collected March 8 from backs of native animals in Wake County, all determined this species. These animals previously examined and reported in CEIR 13(8):117. Grubs averaged 4.9 per animal compared with 5.1 per animal for same animals examined February 13. Age of 30 larvae ranged from second instar to several about ready to leave backs. (Mount).

COMMON CATTLE GRUB (Hypoderma lineatum) - NEW MEXICO - Has been very heavy in backs of untreated and imporperly treated cattle in Colfax and Union Counties. (N. M. Coop. Rpt.). COLORADO - Counts averaged 12.6 per head on untreated cattle in southeastern area. (Hantsbarger). OKLAHOMA - Adult activity noted in Wagoner County. (Okla. Coop. Sur.).

CATTLE BITING LOUSE (Bovicola bovis) - PENNSYLVANIA - Heavy on 500 head of Angus cattle at Saucon, Northampton County. Animals shipped in from out of State during fall of 1962. (Menusan).

CATTLE LICE - OKLAHOMA - Activity of several species continues in most areas across State. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Infestations continue in Cotton, Bryan and Garvin Counties, south central. (Okla. Coop. Sur.).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - OKLAHOMA - Reported biting people in several homes in Tulsa area. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - ARKANSAS - First activity of season observed in Fayetteville area, northwest. (Ark. Ins. Sur.).

A CHIGGER MITE (Euschongastia sp.) - CALIFORNIA - Became serious on local group of throughbred horses at Sonora, Tuolumne County. Horses received from out of State exhibited severe hair loss and lesions over entire body 9 days after arrival. Investigation of local and native fauna showed birds, rabbits, dogs and small animals also infested and exhibiting lesions, particularly on stomach area. This indicated chiggers were of local occurrence and had not been introduced with horses. Horses, being from outside area and not exposed to chiggers, were highly susceptible to bites. Local horses and other domestic stock in immediate area did not exhibit symptoms or effects of chiggers. This is first instance these pests have come to attention as causing damage commercially. Several chigger mite species have been recorded in the State on small animals and deer, but have not been economic. Infested horses responded to chemical control treatment which eliminated chiggers. Additional checks of local animals to be made to determine extent and possible damage to domestic animals. (L. S. Bergstrom, D.V.M.).

AN ANOETID MITE (Myianoetus muscarum) - CALIFORNIA - Populations heavy on floors of poultry houses in Moorpark, Ventura County. (Cal. Coop. Rpt.).

EAR TICK (Otobius megnini) - ARKANSAS - Collected during February in Newton County, northwest. Source of infestation probably cattle shipped into area from the Southwest. (Ark. Ins. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - IDAHO - Common around homes in Caldwell area, Canyon County, during late February. (Bechtolt). UTAH - Very troublesome in number of homes and schoolrooms in Cache, Weber and Salt Lake Counties. (Knowlton). NORTH CAROLINA - Present about base of home in Cleveland County. (Clapp). DELAWARE - Numerous in a New Castle County home. (MacCreary).

A COREID BUG (Stictopleurus punctiventris) - IDAHO - Spottedly abundant in homes at Stites, Idaho County, and causing concern to homeowners. First observed February 22. (Studer).

CLOVER MITE (Bryobia praetiosa) - IDAHO - Appearing in large numbers in and around homes generally throughout Caldwell area, Canyon County, southwest. (Bechtolt). UTAH - Beginning to enter homes at localities in Cache and Salt Lake Counties. (Knowlton). COLORADO - A problem in and around homes on warm days in the Plains area of the State. (Hantsbarger). NEW MEXICO - Large numbers causing concern by entering homes and businesses at Raton, Colfax County. (N. M. Coop. Rpt.). OKLAHOMA - Causing concern in several homes in Tulsa area. (Okla. Coop. Sur.). ARKANSAS - Infested home in Independence County, northwest, during week ending March 9. (Ark. Ins. Sur.). NORTH CAROLINA - Present in residences in Iredell and Davidson Counties. (Jones).

AN ORIBATID MITE (*Galumna* sp.) - CALIFORNIA - Heavy population occurring in residence in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

DRAIN FLIES - DELAWARE - Undetermined species common in school during period March 2-8, and adults rather abundant and annoying in home during period March 9-15, both in New Castle County. (MacCreary).

INDIAN-MEAL MOTH (*Plodia interpunctella*) - MARYLAND - Adults numerous in home at Frederick, Frederick County, March 8. (U. Md., Ent. Dept.).

CONFUSED FLOUR BEETLE (*Tribolium confusum*) - PENNSYLVANIA - Heavy in cornmeal and dried brewer's yeast in State College, Centre County. (Adams).

SUBTERRANEAN TERMITES (*Reticulitermes* spp.) - MARYLAND - *Reticulitermes* sp. reproductive forms swarmed in and around homes in Anne Arundel, Howard and Baltimore Counties. (U. Md., Ent. Dept.). NORTH CAROLINA - Winged forms of *R. flavipes* noted in commercial building in Wake County. (Mount).

OLD-HOUSE BORER (*Hylotrupes bajulus*) - NORTH CAROLINA - Probably responsible for damage to piece of plywood in church in Goldsboro, Wayne County. Only one panel, which was in contact with large supporting timber, was badly damaged. Damage originally reported during early January. Det. by Moore. (Mount).

A POWDER-POST BEETLE (*Lyctus* sp.) - MARYLAND - Adults heavy in bamboo curtain in home at Lutherville, Baltimore County. (U. Md., Ent. Dept.).

CARPENTER ANTS (*Camponotus* spp.) - TEXAS - Activity increasing over State; some swarming of winged forms noted. (Newton).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (*Trogoderma granarium*) - OKLAHOMA - Properties inspected in Beckham, Dewey and Roger Mills Counties with negative results. (Okla. Coop. Sur.).

DERMESTIDS (*Trogoderma* spp.) - VIRGINIA - Inspections revealed infestations of *T. inclusum* in grain elevators and feed mills at 3 separate locations in Norfolk, Chesapeake County, January 9 and 11. Infestation of *T. parabile* found at a wholesale and retail seed store at one location in Norfolk, January 7. Det. by J. M. Kingsolver. (Tarpley).

DRUGSTORE BEETLE (*Stegobium paniceum*) - CALIFORNIA - Heavy infestations occurring in dry dogfood in Hayward, San Mateo County, and on pantry shelves in Sacramento, Sacramento County. Beetles apparently cyclic with about 4 peaks of emergence, although broods are continuous throughout year. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Larvae and adults of *Rodolia cardinalis* very scarce in citrus groves at present time. (Ariz. Coop. Sur.). OKLAHOMA - Several species becoming quite common in alfalfa and small grains in southern parts of State. (Okla. Coop. Sur.).

MISCELLANEOUS INSECTS

THIRTEEN-YEAR PERIODICAL CICADAS - TENNESSEE - An outbreak of Brood XXIII of 13-year cicadas is expected during the spring of 1963. Brood XXIII is a major brood and heavy infestations are due for infested areas. Brood XXIII last appeared in the State in 1950. Previous infestation records are an indication of counties in State which will be infested this year. The western half of Tennessee will be main area of infestation. Records from 1908 show that the following counties were infested: Benton, Carroll, Chester, Crockett, Davidson, Decatur, Dickson, Dyer, Fayette, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Humphreys, Lake, Lauderdale, Lewis, McNairy, Madison, Maury, Montgomery, Obion, Perry, Robertson, Rutherford, Shelby, Stewart, Tipton, Wayne, Weakley and Williamson. Emergence should begin early in May. (Mullett).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Delimiting survey continues to extend infested zone in Sacramento. Gardenias chief host, with citrus second. Over 1,200 blocks surveyed, with treatment applied to approximately 350 city blocks by March 15. (Cal. Coop. Rpt.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - UTAH - Has been emerging during past few days at Logan, Cache County. (Knowlton, Cazier).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Medium population occurring in soil locally in Napa, Napa County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 13(8):131 - GREENBUG (Schizaphis (Toxoptera) graminum) should read (Schizaphis (=Toxoptera) graminum).

CEIR 13(9):155 - PEA APHID (Acyrthosiphon (Macrosiphum) pisum) should read (Acyrthosiphon (=Macrosiphum) pisum). See CEIR 13(5):84.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Perid. saucia	Prod. ornith.	Laphyg. frug.	Pectin. gossyp.	Helio. zea
FLORIDA								
Gainesville 3/13	1		2					
Northeast Gainesville 3/12-14			51					
GEORGIA								
Tifton 3/7-13	No collections.							
MISSISSIPPI								
*Stoneville	7	8		31	10			
SOUTH CAROLINA								
Clemson 3/1-15	1	2			2			
TEXAS								
*Brownsville 3/1-14	424	369	578	376	70	258	10	321

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* Two traps - Stoneville; 6 traps - Brownsville.

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on December 31, 1962, follow. These reports are based on the identifications received from Federal taxonomists at the U. S. National Museum during the month, but do include any of special interest from recent months that were not previously reported.

LEEK MOTH (*Acrolepia assectella* (Zell.)) in stores at Cleveland, Ohio.

CITRUS BLACKFLY (*Aleurocanthus woglumi* Ashby) in baggage at El Paso, Texas.

A FRUIT FLY (*Anastrepha* sp., possibly *fraterculus* (Wied.)) in coffee berries in transit baggage at New York, New York.

MEXICAN FRUIT FLY (*Anastrepha ludens* (Lw.)) in quarters, stores and baggage: 7 times at San Ysidro and 2 times at Calexico, California; 3 times at Nogales, Arizona; in Texas, 11 times each at El Paso and Laredo, 1 time each at San Antonio, Eagle Pass, Roma and Galveston, 12 times at Hidalgo, 2 times at Brownsville and 4 times at Houston; 2 times at New York, New York.

A WEEVIL (*Baris* sp., probably *lepidii* Germ.) in horseradish in baggage at Chicago, Illinois.

BRUCHIDS (*Bruchus* spp.) (European or Mediterranean species of economic importance) 10 times. *B. dentipes* Bandi in broadbeans in baggage at Boston, Massachusetts; *B. ervi* (Froelich) in lentils in baggage at Philadelphia, Pennsylvania; *B. guttalis* Rey in vetch seed in baggage at Boston, Massachusetts; *B. lentis* Froelich in lentils in baggage at New York, New York. Also, probably *B. lentis*, in stores at Wilmington, North Carolina; in lentil cargo at Buffalo, New York; and in stores at Charleston, South Carolina. *B. signaticornis* Gyll. in lentils in baggage at New York, New York; *B. tristis* Boh. twice in *Lathyrus* spp. at New York, New York.

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata* (Wied.)) (or probably that species) in stores and baggage as follows: 10 times at Boston, Massachusetts; 26 times at New York, New York; 2 times at Honolulu, Hawaii. Also, one time each at Philadelphia, Pennsylvania; Norfolk, Virginia; Miami, Florida; and Galveston, Texas.

MELON FLY (*Dacus cucurbitae* (Coq.)) in stores at San Pedro, California.

ORIENTAL FRUIT FLY (*Dacus dorsalis* Hend.) (or probably that species) 7 times - in stores (1), mail (1) and baggage (5); 6 times at Honolulu, Hawaii, and 1 time at San Pedro, California.

PINK BOLLWORM (*Pectinophora gossypiella* (Saund.)) in baggage at Miami, Florida.

EUROPEAN CHERRY FRUIT FLY (*Rhagoletis cerasi* (L.)) 11 times - in stores (6) and baggage (5), as follows: One time each at McGuire AFB, New Jersey, and at New York, New York; 3 times at Philadelphia, Pennsylvania; 6 times at Boston, Massachusetts.

A STENOMID MOTH (*Stenoma catenifer* Wlsm.) (a pest of avocado) 4 times - in stores (2) and baggage (2); 3 times at Miami, Florida, and one time at New Orleans, Louisiana.

WHITE GARDEN SNAIL (*Theba pisana* (Müller)) 5 times in general cargo and in cargoes of dried plants, flower seed, and cut flowers. One time each at New York, New York; San Pedro, California; and Philadelphia, Pennsylvania. Also 2 times at Wilmington, North Carolina.

CRANE FLIES (_Tipula_ spp., _paludosa_ group) (European species of economic importance) in soil with plants at McGuire AFB, New Jersey.

KHAPRA BEETLE (_Trogoderma granarium_ Everts) 12 times - in stores (1), ship's hold (2), and contaminated cargoes (9) of gum zedou, celery seed and wall board. One time each at Seattle, Washington, and at Baltimore, Maryland; 2 times at Cleveland, Ohio; and 8 times at New York, New York.

GOLDEN NEMATODE (_Heterodera rostochiensis_ Wr.) 2 times in mail; one time each at Hoboken, New Jersey, and Seattle, Washington.

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Weather of the Week Ending March 18 (continued from page 250)

This system weakened as it moved off the New England coast by the 14th. Burlington, Vermont, received 3 inches of new snow. By the 15th, a new Pacific storm had moved inland over the Great Basin spreading rain and snow over much of the Far West as it moved eastward. High winds, to 75 m.p.h. in New Mexico, kicked up dust over the Southwest States. Austin, Nevada, was covered by 6 inches of snow; Salt Lake City, Utah, received 4 inches. As the storm moved from the central Rockies to the western Great Lakes on the 16th, it dropped up to 1 foot of snow in the Black Hills of South Dakota, set off severe storms from Iowa and Missouri eastward, and left excessive rainfall amounts over most of the Ohio Valley and the central Mississippi Valley. Two twisters struck in Iowa and hailstorms were reported from Iowa and Missouri. Localized flooding occurred in Indiana. Northerly winds whipped dust into the air, reducing visibilities to less than a mile for several hours over the central Plains. Moderate precipitation amounts fell over most of the East Coast States on the 16th and 17th, as the storm moved seaward over New England.

A new storm had moved inland on the 16th and into the southern Rockies on the 17th. California was the recipient of the largest totals as thunderstorms dropped many 1-inch totals over the State. San Diego, California, had 1.04 inches on the 17th, 0.75 inch falling in 6 hours, for one of the heaviest showers in years. Nearly all of the higher elevations of the southwest quarter of the Nation had increases in the snowpack to give a slightly improved irrigation outlook. Pine, Arizona, received 18 inches of new snow. (Summary supplied by U. S. Weather Bureau).

SUMMARY OF INSECT CONDITIONS - 1962

(continued from page 248)

COTTON INSECTS

Highlights:

BOLL WEEVIL infestations in North Carolina were troublesome and those in South Carolina needed controls throughout the season. The carryover and emergence in South Carolina were the heaviest since 1956. Infestations in Georgia were about the same as in 1961, but lighter than in some previous years; and infestations in Alabama were generally not as heavy as they were in 1961. Boll weevil was of less concern in Mississippi and was of secondary importance in Louisiana. Infestations were somewhat higher in Arkansas but extremely low in Missouri. Boll weevil was not considered serious in Oklahoma; and 1962 was one of the lightest boll weevil years in the last several in many areas of Texas, especially early in the season. Of major importance is the spread of the weevil toward the cotton-growing areas of New Mexico and Arizona.

BOLLWORM is becoming an increasing problem in cotton-growing areas of Nevada and damaging populations were present in Arizona. In New Mexico, the heaviest infestation since 1957 existed in 1962. The bollworm was the most damaging insect of cotton during 1962 in Texas and was important in Oklahoma. Bollworms were of greater importance in Arkansas, Mississippi and Louisiana than in 1961, and were extensive throughout the season in Alabama. Infestations in Georgia were about the same as those in 1961, but they were not as heavy in the Carolinas as in previous years.

PINK BOLLWORM infestations in central Arizona have been reduced to the point where fewer than 300 acres will be treated in 1963. The regulated areas in Louisiana and Arkansas have been reduced. CABBAGE LOOPER was heavier than in 1961 in Georgia and was of considerable concern in South Carolina. It also caused severe "ragging" of plants in Alabama.

LYGUS BUGS were a continuing problem in California cotton fields and serious damage resulted where treatment timing was poor. MITES were also a major problem in California. Cooler-than-normal weather was probably partly responsible. Mites were treated in Arizona and Nevada during 1962; and hot, dry weather in the Southeastern States prompted higher-than-normal populations of mites and, in some cases, damage was reported.

BOLL WEEVIL (Anthonomus grandis) began emerging from hibernation in the Coastal Plain of NORTH CAROLINA the week of May 14. Early counts were much higher in Scotland County than those of 1961, and emergence continued into the second week of June. Some feeding and egg punctures were noted at that time in the county. Populations were quite high by the last of July 1962 in Johnston, Wilson and Wayne Counties, North Carolina, and migrating weevils made control difficult in these areas. In SOUTH CAROLINA, the heaviest carryover and emergence in cotton fields since 1956 were observed. Growers who did not control the weevil did well to make half a bale per acre. Large acreages produced 1.5 to 2 bales per acre with 12-20 applications. Infestations in GEORGIA were light to moderate early in the season. July was very dry, and boll weevil infestations were lower than average for this time of year. Infestations in Georgia were moderate to heavy after migrations began. Generally, infestations in Georgia were about the same as in 1961, but lighter than in some previous years. Infestations in ALABAMA were generally not as heavy as they were in 1961.

Feeding was observed on young buds in the southern and central parts of the State in May; however, damage was very light. There was a rapid increase in these areas of Alabama in late July. In the northern part of the State, infestations remained low until late July and increased steadily throughout the remainder of the season.

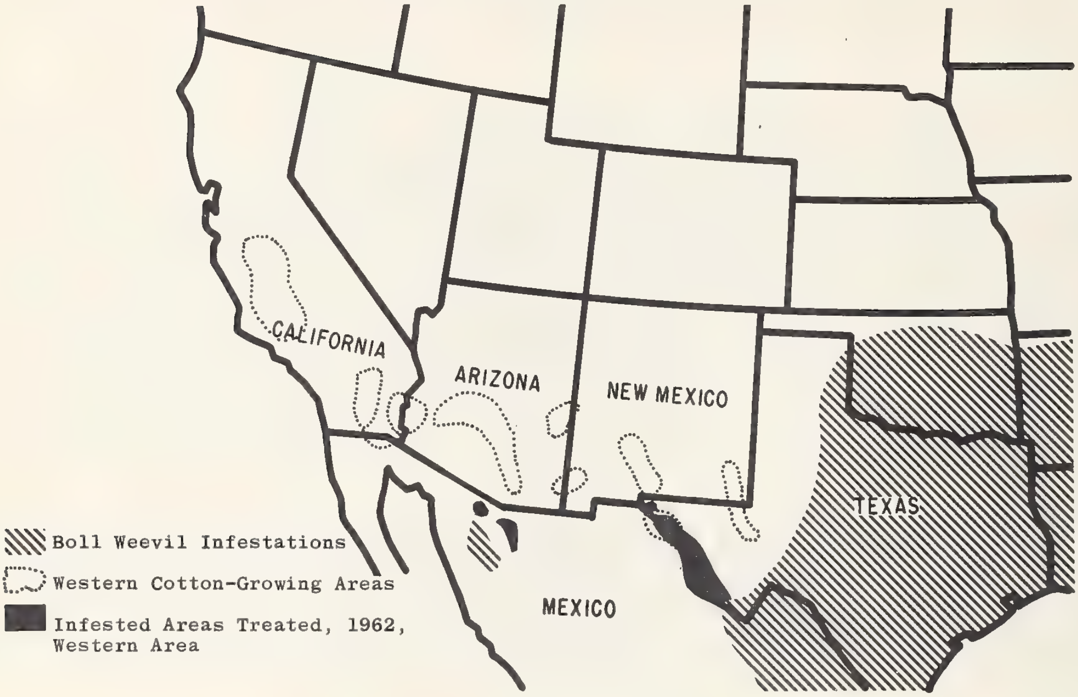
Boll weevil damage became light to heavy in southern TENNESSEE late in the season. Counties to the north of this area of Tennessee also became infested, but damage was not great. Boll weevil caused less concern in MISSISSIPPI than in former years; and the pest was so well controlled in LOUISIANA by the hot, dry weather, which was prevalent for most of the growing season, that it was of secondary importance. Infestations in ARKANSAS were somewhat higher in 1962 than in 1961. Control was excellent and losses low. All survey was with the point sample method. With this method, total squares, as well as percent punctured squares, are recorded. The percentage of fields infested from mid-June through August ranged from 18 to 96.5, for a season average of 77.4. The five-year season average is 68.6. Insecticidal treatments for all cotton pests ranged from 4.8 to 90.2 percent of the fields during the mid-June through August period. Infestations in MISSOURI were extremely low in 1962. The highest percentage of damaged squares found in any field was nine. No insecticides were applied for boll weevil in Missouri in 1962.

The first boll weevil activity in OKLAHOMA was reported in late June, with a general buildup following until peak populations were reached during late July and August. Activity continued on late cotton in Oklahoma until harvesting had started. Except for isolated spots, the infestations were not considered as serious as in 1961. In TEXAS, 1962 was one of the lightest boll weevil years in the last several in many areas, especially during the early part of the season. However, as the season progressed, populations became damaging in most areas of Texas where adequate control measures were not underway.

In 1953, a boll weevil infestation was found for the first time in the lower end of the Presidio Valley of Texas. Since then, it has become an economic pest in the Presidio-Ojinaga area. Intensive surveys in 1961 and 1962 revealed that the infestation had advanced up the Rio Grande Valley about 125 miles north of Presidio, and that there were isolated infestations further north in the El Paso Valley. A second area of infestation exists near Magdalena, Sonora, Mexico, within 45 miles of a cotton-growing area north of Nogales, Arizona. An effort is being made to find a way to stem further spread of boll weevil to the West. In 1961, some 2,500 acres were cooperatively treated along the Rio Grande Valley in Mexico and Texas. This treatment was very effective in reducing populations. In the fall of 1962, this same area was again treated. Treatments were also applied to the isolated infestations in the El Paso Valley in both years. In addition, approximately 3,000 acres were treated in the Magdalena area of Mexico south of Nogales, Arizona. A full appraisal of the 1962 treatments will be made in the spring and summer of 1963. (See map on following page).

Damage to seedling cotton and larger plants by unspecified FLEA BEETLES was below normal in 1962 in Clark County, NEVADA. Heavy, local infestations of PALE-STRIPED FLEA BEETLE (*Systena blanda*) and ELONGATE FLEA BEETLE (*S. elongata*) were reported on cotton in Spalding County, GEORGIA. Pale-striped flea beetle was not a problem in MISSOURI, but several species of WHITE GRUBS reduced stands of cotton in fields in flooded areas of Missouri as much as 25 percent.

BOLL WEEVIL PROGRAM, WESTERN AREA


CALIFORNIA
ARIZONA
NEW MEXICO
TEXAS
MEXICO
▨ Boll Weevil Infestations
Western Cotton-Growing Areas
■ Infested Areas Treated, 1962, Western Area

Populations of BOLLWORM (Heliothis zea) did not show during the early part of the growing season in CALIFORNIA, although some larvae were present. Predators were abundant which helped reduce larval numbers. One to 20 larvae per 100 terminals were general, late in the growing season. Populations continued extremely late, and light to medium larval numbers were evident in gin trash. Infestations and damage in NEVADA were at about the same levels as in 1961, with the heaviest infestations occurring during August. Bollworm is becoming an increasing problem in cotton-growing areas of Nevada. Infestations were generally higher than in 1961 in ARIZONA. Damaging populations were present during August in some areas of that State. In NEW MEXICO, the heaviest bollworm infestations in cotton, since the insect survey program started in 1957, existed in 1962. Beginning about the middle of June and continuing until the middle of October, it was necessary to follow a strict control schedule to prevent severe damage in Dona Ana and Eddy Counties.

Bollworm was the most damaging insect of cotton during 1962 in TEXAS. Heavy infestations occurred in all areas of the State, with serious damage usually occurring before the populations were brought under control. TOBACCO BUDWORM (H. virescens) was locally heavy during the late season in central, west central, south central and southern areas of Texas. This insect was not a serious problem generally. In OKLAHOMA, damaging populations of bollworm existed throughout the State from late July through late September. The highest populations existed from the latter part of July through August. Damage from this species showed considerable increase over 1961.

Bollworm and tobacco budworm have become of greater importance in ARKANSAS as pests of cotton during the past few years, both as to severity of infestations and difficulty of control. Special surveys showed that bollworm is the principal species. August collections were 945 H. zea and 3 H. virescens. The ratio changed somewhat later in the season as expected; however, this occurred after the main threat to cotton had passed. Collections in late September were 31 H. zea to 7 H. virescens. In mid-October, collections were 75 H. zea to 9 H. virescens. Light trap collections in 4 locations totaled 2,845 H. zea and only 40 H. virescens adults during the season. The percentage of fields infested with bollworms (Heliothis spp.) ranged from 21.3 to 70.8, for a season average of 51. The 1961 range was from 9.6 to 69, for a season average of 41.8. The five-year season average is 48. To facilitate control, 6,692 H. zea were collected from corn for testing with various materials and dosages. The magnitude of infestations is illustrated by the number of fields with high egg and larval counts. From late July through August, 8 to 25 percent of the fields scouted had egg counts of more than 10 eggs per 100 terminals. During the same period, from 16 to 24 percent of the fields had larval counts of more than 4 per 100 terminals. Damaged squares were reported by all scouts for the first time in 1962. For the second consecutive year, special whole plant counts were made in selected fields to provide a comparison of terminal to whole plant counts of eggs and larvae. The ratio is approximately one to four, being narrower early in the season and wider in the late season. For eggs, the ratio ranged 1-2 to 1-5.4. For the larvae, the range was 1-2.6 to 1-5.6. Bollworm pressure was greatest late in July. Insecticide treatments are generally applied for more than one pest in Arkansas; however, the most important pest at the time of application is recorded. In late July, bollworm was rated the number one pest in 27 percent of the fields treated. A special study of larval size showed that from one to forty-one percent of the larvae found on cotton reached one-half inch or more in length, the size that is difficult to control.

The heaviest populations of bollworms, principally bollworm but including tobacco budworm, experienced in several years in LOUISIANA caused more damage than any other cotton pest. Resistance to both DDT and endrin developed in some populations and increased the damage caused by bollworms. Bollworms were also reported to be more abundant than usual in MISSISSIPPI, and late season populations were damaging to cotton in western TENNESSEE. Beginning early in July, bollworms began a slow buildup in MISSOURI that continued until cotton was no longer attractive to the moths. Cotton that was late because of the dry weather in May required several applications of insecticides.

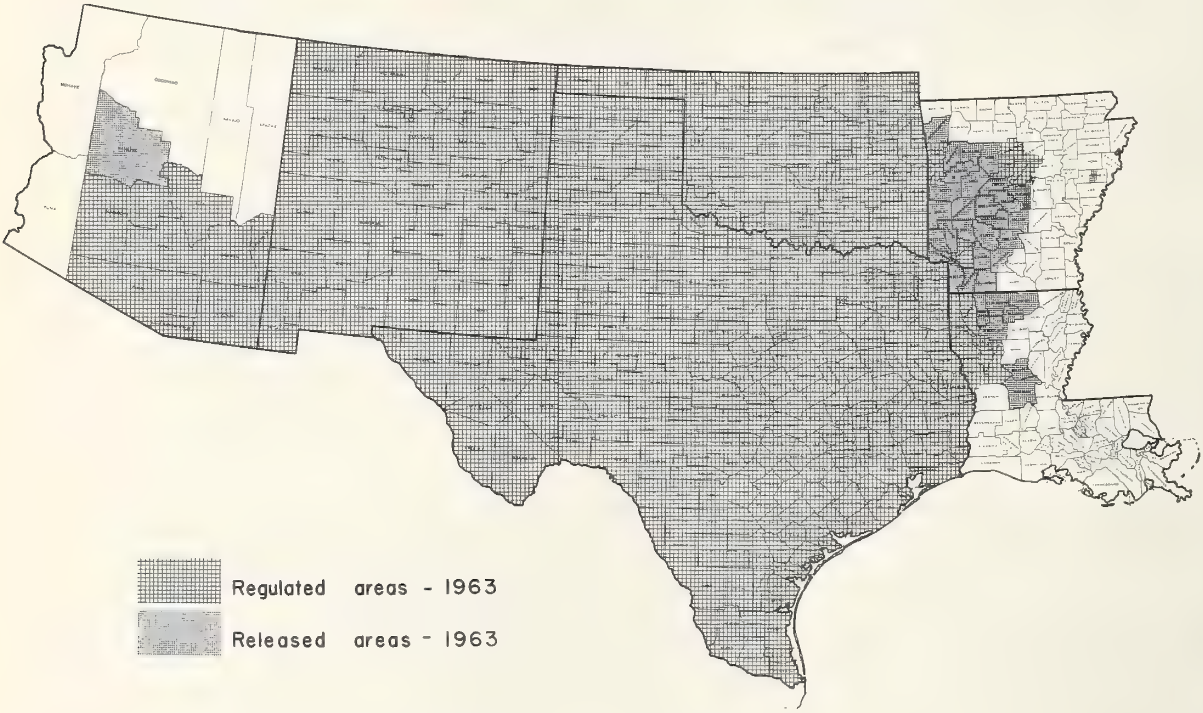
Bollworms were extensive throughout the season in ALABAMA. Infestations in southern and central sections averaged 8 to 10 larvae per 100 terminals as early as mid-May. By early June, infestations in these areas averaged 10 to 15 larvae per 100 terminals. During the latter part of June, infestations in all sections of Alabama were somewhat higher than in previous years. Populations decreased to some extent in early July, but by late July infestations were again increasing, especially in the northern part of the State. In late August, infestations were almost out of control in some sections of northern Alabama where effective control programs were not being initiated in time. Infestations in this area of the State ran as high as 85 percent, and up to 50 percent of the total crop was destroyed. Infestations remained about average in the Tennessee Valley and other sections of north Alabama throughout the late season. Infestations in GEORGIA were light to heavy, with most infestations being light to moderate. They were generally about the same as in 1961, but lighter than in several years previous to this date. First eggs were noted on May 12. The high egg count in Georgia was 115 per 100 terminals during late August. The high larval count was 54 per 100 terminals during late July. Bollworms caused some damage in SOUTH CAROLINA, but much less than during several years in the late 1950's. Light numbers of bollworms appeared on cotton in Wilson and Scotland Counties, NORTH CAROLINA, during the first week of June. Infestations were generally not heavy in most cotton areas of the State, but some untreated fields in Scotland County sustained 20 percent boll damage, which was higher than normal.

SALT-MARSH CATERPILLAR (Estigmene acrea) infestations in ARIZONA appeared earlier than usual and developed into damaging infestations in some cases. In most cases, however, beneficial insects and disease of the larvae prevented serious buildups until late September. In CALIFORNIA, local, heavy infestations were present in

Kings County, and light populations occurred over the State in many crops, including cotton. Populations were more obvious and probably less damaging in California in 1962 than in 1961. Salt-marsh caterpillar was a minor pest of cotton in TEXAS. It occurred in localized areas, but did not cause general damage over the State.

The outlying infestation of PINK BOLLWORM (Pectinophora gossypiella) in central ARIZONA has been progressively reduced each year since the eradication program was started in 1958. The acreages treated since the beginning of the program were as follows: 75,000 in 1959; 30,013 in 1960; 11,058 in 1961; and 1,200 in 1962. Only one pink bollworm specimen was recovered in the 1962 season in Arizona. In the 1963 season, spraying is planned on fewer than 300 acres, and the survey and regulatory program will be drastically reduced. In ARKANSAS and LOUISIANA, no pink bollworms were found until late in the season, when a few specimens were found in gin trash from two locations in each State. Several counties in Arkansas and parishes in Louisiana were removed from the regulated area. In TEXAS, appearance began in the coastal bend area about the middle of June, and some fields had as high as 90 percent infested bolls by the last of July. Pink bollworm was generally light throughout southern NEW MEXICO counties, except for a late buildup which was found in southern Eddy County. Several fields in this area showed considerable damage. Temperatures of -2° to -8° F. killed larvae in bolls of standing stalks in January 1962. Populations in OKLAHOMA were somewhat increased over the last two years, based on gin trash and lint cleaner inspections. Surveys in CALIFORNIA, NEVADA and MISSOURI were negative in 1962.

PINK BOLLWORM REGULATED AREAS



COTTON SQUARE BORER (Strymon melinus) was a minor pest in localized areas of TEXAS and MISSOURI. Occurrence was very light in CALIFORNIA and no economic damage was reported. COTTON LEAF PERFORATOR (Bucculatrix thurberiella) populations were light in some areas of Yuma and Pinal Counties, ARIZONA, during August and September. It did not build up as in previous years. Populations in CALIFORNIA were general, but late in getting started. They appeared first in the north end of the Imperial Valley. Cotton continued to grow until the end of the year, and populations of cotton leaf perforator were present, which is unusually late.

CABBAGE LOOPER (Trichoplusia ni) appeared in ALABAMA cotton in large numbers in the southeastern part of the State in late July. By early August, this insect had spread throughout southern and central Alabama and, by mid-August, heavy infestations were reported from all areas of the State. Control was difficult, and severe "ragging" of cotton plants occurred before infestations subsided in late August and early September. The appearance of this insect in such numbers probably caused farmers more concern than any other pest throughout the season. Cabbage looper was light to heavy in GEORGIA, with most infestations being moderate to heavy. Infestations were greater than in 1961. In SOUTH CAROLINA, cabbage looper damage was the greatest ever noted. It was more noticeable in fields treated with insecticides throughout the season. The pest was not as damaging as growers thought, however. Damage came late in the season and disease of larvae finally helped. Cabbage looper was common in fields of cotton by late July in NORTH CAROLINA, but not of major importance. An early population in southwestern Wayne County was pupating during the second week of July.

Cabbage looper was present in all cotton-growing areas of CALIFORNIA. Populations continued throughout the harvest season. Variable numbers occurred. Infestations were present in ARIZONA cotton throughout the summer. In a few cases, foliar damage was heavy and control measures were required, but, in most cases, populations were held down by a disease of larvae. Localized infestations caused concern in several areas of TEXAS, but infestations were not generally distributed. Cabbage looper was active on cotton in OKLAHOMA and MISSOURI, but not a problem.

Heavy populations of cabbage looper and BEET ARMYWORM (Spodoptera exigua) occurred on cotton in LOUISIANA; the heaviest ever observed. Foliage "ragging" was common throughout the State, but the two pests were considered to be of economic importance in only a few late-planted cotton fields. Beet armyworm was found for the first time on cotton in ALABAMA in 1962. Heavy infestations occurred in Autauga County during mid-August. Moderate to severe defoliation occurred before the infestation was discovered. A survey to determine the distribution of this insect was not made. Low populations of beet armyworm occurred in several areas of CALIFORNIA and in Clark and Nye Counties, NEVADA. Infestations of beet armyworm and GARDEN WEBWORM (Loxostege similalis) caused considerable concern in west central and west TEXAS. Locally, severe damage caused by beet armyworm and/or garden webworm was present in several cotton plantings over this area of Texas. Garden webworm was not a problem in MISSOURI.

COTTON LEAFWORM (Alabama argillacea) was collected in Acadia Parish, LOUISIANA, in late May, but failed to develop heavy infestations until later in September and early October after insecticide application for control of other pests had been discontinued. Cotton leafworm caused considerable defoliation of cotton locally in the west cross timbers and northwest areas of TEXAS. The insect appeared in OKLAHOMA and MISSOURI, but was not a problem. Light, scattered infestations of STALK BORER (Papaipema nebris) were a minor problem in MISSOURI; and larvae of a NOCTUID (Proxenus mindara) were light to medium in CALIFORNIA cotton until the end of the year. Several species of CUTWORMS required controls in areas of southern TEXAS early in the year, and they slightly reduced stands of cotton in marginal rows of several MISSOURI fields. GRANULATE CUTWORM (Feltia subterranea) populations were light to medium in gin trash in CALIFORNIA until the end of the year; and local, heavy infestations of granulate cutworm were present on seedling cotton in southeast GEORGIA. In addition, several northeast Georgia counties had heavy infestations of granulate cutworm late in the season.

Heavy, larval populations of CELERY LEAF TIER (*Udea rubigalis*) developed on cotton in the desert growing areas of CALIFORNIA. Some difficulty in control was experienced due to the larvae being on the undersides and lower leaves in webs. This species occurs south of the Tehachapi Mountains in California, whereas, another PYRAUSTID MOTH (*U. profundalis*) occurs in the area north of the Tehachapi Mountains. This latter species caused considerable defoliation in some fields in the San Joaquin Valley. Control is difficult with this pest. Larvae of another PYRAUSTID MOTH (*Noctuelia rufofascialis*) were locally a pest in TEXAS, but not generally. It lightly damaged cotton squares in the south central area.

A LEAF ROLLER (*Platynota stultana*) occurred in light to medium-heavy populations on cotton in the Imperial Valley of CALIFORNIA. Only occasionally does this insect become a problem in the San Joaquin Valley, and then it is usually associated with crops adjacent to cotton.

Light numbers of COTTON APHID (*Aphis gossypii*) were general in the eastern part of NORTH CAROLINA during the second week of July. Moderate populations built up in many areas of the State, but decreased by the first of August in Johnston, Wilson and Wayne Counties. In SOUTH CAROLINA, severe localized buildups occurred before effective controls were applied in July. Infestations of cotton aphid were light in GEORGIA, lighter than in recent years. Cotton aphid was present in damaging numbers in seedling cotton in several fields in central ALABAMA during late April and early May. Infestations increased generally in other areas of Alabama and, by late May, aphids were present in all sections of the State. Infestations subsided during June only to increase again in July in south Alabama and in the Tennessee Valley area of the State. Infestations in ARKANSAS were similar to those of 1961. Light infestations occurred in from 13 to 41 percent of the fields checked (about 13 percent of the State's acreage) compared with 19 to 35 percent in 1961. The season-long average percentage of fields infested was 39.7 compared with 28.9 in 1961 and 22.2 for a five-year average. The highest number of fields treated primarily for aphids was 44 of 6,829 scouted the second week of August. During the early part of the growing season in MISSOURI, spots of heavily infested cotton were found in many fields. A few fields were inadvertently sprayed. Most cotton aphid infestations were brought under control by parasites in Missouri. Cotton aphid infestations in TEXAS were generally light over the State, but scattered fields in most areas required some control measures. Spotted, light to heavy infestations were reported on cotton in Mesilla and Pecos Valleys, NEW MEXICO, during October and November. Populations in NEVADA peaked in early June, but were controlled by lady beetles and remained at low levels the rest of the season. Aphids in general were not the problem that they were in 1961 in CALIFORNIA. Cotton aphid was present, but not as numerous as in the two previous seasons. COWPEA APHID (*Aphis craccivora*) populations were heavy on cotton seedlings in parts of the San Joaquin Valley.

LYGUS BUGS (*Lygus* spp.) were a continuing problem in CALIFORNIA cotton fields and serious damage resulted where treatment timing was poor. The continued migration of bugs from alfalfa and safflower fields occurred all season. The condition was general. In ARIZONA, adult migrations of lygus bugs from alfalfa and other hosts began in May, slightly earlier than in previous years. Infestations increased to high populations in July and continued high in many untreated fields until September. Infestations in 1962 were about normal when compared with previous years. Lygus bugs increased to economic numbers in Nye County, NEVADA, during July, but were kept under control by parasites, predators and insecticides. In Clark County, Nevada, lygus bugs were subeconomic. *Lygus* sp. was a minor pest in localized areas of TEXAS.

TARNISHED PLANT BUG (*Lygus lineolaris*) and COTTON FLEAHOPPER (*Psallus seriatus*) were the principal plant bugs on cotton in ARKANSAS. Of minor importance in the State were RAPID PLANT BUG (*Adelphocoris rapidus*) and *Neurocolpus nubilus*. Very few fields were treated in Arkansas for these pests. In MISSOURI, a complex of plant bugs, including cotton fleahopper, tarnished plant bug, rapid plant bug and N. nubilus, was found in more than 50 percent of the scouted fields every week during the growing season. Infestations ranged as high as 150 per 100 terminals. Several fields were treated. In OKLAHOMA, cotton fleahopper was said to be responsible for the shedding of young squares in the west central area. Populations of cotton fleahopper in TEXAS were variable, with economic damage occurring in many areas as rains hampered control operations when plants were most susceptible to injury. Light infestations of cotton fleahopper were present in some ARIZONA cotton during June, July and August.

A BLACK COTTON FLEAHOPPER (Spanogonicus albofasciatus) and cotton fleahopper were controlled in NEW MEXICO cotton while controlling bollworm (Heliothis zea). In ARIZONA, S. albofasciatus infestations were much lighter than in 1961, although some fields were treated. Counts averaging 30 to 60 adults and nymphs per 100 sweeps were common during June. This species began to increase during June in NEVADA cotton, but was controlled by insecticide treatments for lygus bugs.

SWEETPOTATO WHITEFLY (Bemisia tabaci) nymphal populations were heavy locally in the Coachella Valley of Riverside County, CALIFORNIA. Also in California, heavy populations of STINK BUGS occurred in the desert regions, and variable populations in other areas. The problem was not so acute in the San Joaquin Valley as in the previous summer. SAY STINK BUG (Chlorochroa sayi) and Euschistus impictiventris infestations were present throughout the summer in ARIZONA cotton and were heavier than normal in several areas, particularly in central Arizona. LEAFHOPPERS were abundant in cotton fields in the San Joaquin Valley of CALIFORNIA. A few fields showed no fruiting of the plants as a result of infestations. Where treatments were applied, control was effective. In Clark County, NEVADA, Empoasca sp. populations were far below those of previous years and damage was negligible.

Infestations of unspecified THRIPS were light to heavy on cotton in GEORGIA, with most infestations being moderate to heavy; and populations in ALABAMA were generally low, with only light damage encountered. Several thrips were of little concern in ARKANSAS, and infestations of several species were generally light over TEXAS, although scattered fields in most areas required some control measures. In MISSOURI, thrips, including TOBACCO THRIPS (Frankliniella fusca) and FLOWER THRIPS (F. tritici), were present in most cotton fields during the year. Very few infestations became severe enough to warrant controls, however. Frankliniella spp. were active on cotton in OKLAHOMA during the year, and damage to seedling cotton in Clark County, NEVADA, was heavy during May. Thrips in general were present in most CALIFORNIA cotton fields. Apparently little damage resulted from the infestations. A heavy population of Hercothrips phaseoli developed in the Bard area of Imperial County. Light infestations of thrips occurred on seedling cotton over ARIZONA. A few fields, particularly in the high elevations, had counts of 2 per plant, and treatments were applied in some cases. In NEW MEXICO, thrips, mostly F. occidentalis, damaged seedling cotton, but not as severely as in 1960. However, heavy, spotted infestations requiring treatment were found in northern Dona Ana County.

CRICKETS (Gryllus spp.) became heavy in many crops, including cotton, in Imperial County, CALIFORNIA. Several insecticides were tested for control in 1962. Foliage, squares and bolls were all damaged by nymphs.

MITES in general were slow in getting started in CALIFORNIA and held rather steady for some time before heavy populations developed which continued through September. Mixed populations of mites were not uncommon. In many fields, mites were uncontrolled and severe damage resulted. Cooler-than-normal weather was probably responsible for growers not checking fields as closely as they should, which allowed mite populations to get out of hand before treatments were applied. There was considerable variance in the results of control and, in most cases, control was poor. Faulty application was blamed for most of the failures.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) occurred throughout the growing season in California and required considerable treatment. STRAWBERRY SPIDER MITE (T. atlanticus) populations that could have been controlled in late May or early June were neglected, and considerable damage resulted which consisted of from heavy reddening of the foliage to defoliation. Many fields had to be re-treated for this species due to poor initial treatment. Some populations remained late in the season. PACIFIC SPIDER MITE (T. pacificus) increases continued throughout the summer and the early fall in California. Numerous fields in the San Joaquin Valley area were first treated for this mite in July.

Populations of SPIDER MITES (Tetranychus spp.) began increasing in early May in Nye County, NEVADA, and reached economic levels in late May and June. Most fields were treated, but many plants were killed in several untreated fields. In central ARIZONA, spider mites, primarily T. cinnabarinus, were a problem in some areas throughout the summer. Controls were required in some fields. Occasional infestations were found during the summer months in all cotton-growing areas of NEW MEXICO; and several species of spider mites were minor pests which occurred in localized areas of TEXAS, but they did not cause general damage in that State. Tetranychus spp. were active in OKLAHOMA, and populations were heavier than usual in LOUISIANA, but about normal, considering the drought conditions which prevailed during most of the season.

Several species of spider mites occurred on cotton in ARKANSAS. Infestations were similar to those of 1961. The percentage of fields infested ranged from 3.2 to 20.8, for a season average of 11.4. The 1961 season average was 11.8, while the five-year average is 13.4. Control was very effective, with spot treatments being generally adequate. In MISSOURI, spider mites, mainly strawberry spider mite, had favorable hot, dry weather for a buildup. Considerable spot, strip and, later, whole field treatments were necessary. Because of favorable conditions, mites persisted until about the middle of August in Missouri when a gradual decline in populations was observed. Spider mites were also abundant on cotton in western TENNESSEE and in MISSISSIPPI during the hot, dry weather of July and August. Damage was high on late cotton in western Tennessee, and economic damage was reported in many Mississippi fields. Infestations in ALABAMA were observed on seedling cotton in the Tennessee Valley and Sand Mountain areas and in a few isolated areas in other sections of the State by mid-May. Infestations subsided to some extent during the rainy period of early June, but increased rapidly during July and August. Spider mites caused defoliation of cotton in several areas of Alabama. There was a noticeable increase in activity in general throughout the State over previous years. Infestations of two-spotted spider mite and DESERT SPIDER MITE (T. desertorum) were light to moderate during the early season in GEORGIA, but moderate to heavy late in the season. In NORTH CAROLINA, Tetranychus spp. were numerous over entire fields in an area of eastern Robeson County on August 1. Many fields in Johnston and Wilson Counties had light to moderate infestations, and several fields in the former county were heavily infested over the entire field.

PILLBUGS were abundant over TEXAS during the spring and actually damaged some cotton stands in Victoria County.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Soybeans (Commodity) IN Ohio (State or District) DURING 1961 (Year)

A. Pest or pest complex

1. Seed-corn maggot
2. White grubs (*Phyllophaga* spp.)
3. Wireworms
4. Grasshoppers (*Melanoplus* spp.)
5. Blister beetles

B.	Number of acres[a] produced (From CRS)	No.	1,722,000
C.	Average yield per acre[a] (From CRS)	Units/	28 Bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	2.25
E.	Acres[a] needing control	No.	17,200 (1%)
F.	Acres[a] treated	No.	1,700 (.01%)
G.	Reduction due to not treating where needed:		15,500 (E - F)
	H. Loss in yield, percent	%	15
	I. Loss in yield, units per acre[a], C x H	Units/	4.2 Bu.
	J. Loss in yield, $ per acre[a], D x I	$/	9.45
	K. Loss in quality, $ per --[a]	$/	--
L.	Yield loss for all acres[a], (E-F) x I	Units	65,100 Bu.
M.	Control cost, $ per acre[a]	$/	2.50
N.	Control cost for all acres[a], F x M	$	4,250
O.	Yield loss for all acres[a], (E-F) x J	$	146,480
P.	Quality loss for all --[a], (E-F) x K	$	--
Q.	Combined control cost and losses, N + O + P	$	150,730

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by William F. Lyon

Date 12/28/62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Corn For Grain (Commodity) IN Ohio (State or District) DURING 1961 (Year)

A. Pest or pest complex
1. Corn rootworms
2. Corn leaf aphid
3. Cutworms - Wireworms
4. European corn borer
5. Chinch bugs
6. Corn earworm

B.	Number of acres[a] produced (From CRS)	No.	2,537,000
C.	Average yield per acre[a] (From CRS)	Units/	74 Bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	1.01
E.	Acres[a] needing control	No.	126,900 (5%)
F.	Acres[a] treated	No.	25,400 (1%)
G.	Reduction due to not treating where needed:		101,500 (E - F)
	H. Loss in yield, percent	%	6
	I. Loss in yield, units per acre[a], C x H	Units/	4.44 Bu.
	J. Loss in yield, $ per acre[a], D x I	$/	4.48
	K. Loss in quality, $ per --[a]	$/	--
L.	Yield loss for all acres[a], (E-F) x I	Units	450,660 Bu.
M.	Control cost, $ per acre[a]	$/	3.00
N.	Control cost for all acres[a], F x M	$	76,200
O.	Yield loss for all acres[a], (E-F) x J	$	454,700
P.	Quality loss for all --[a], (E-F) x K	$	--
Q.	Combined control cost and losses, N + O + P	$	530,900

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by William F. Lyon

Date 12/28/62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Wheat (Commodity) IN Ohio (State or District) DURING 1961 (Year)

A.	Pest or pest complex	1. Grasshoppers (*Melanoplus* spp.) 2. Hessian fly 3. Chinch bug	4. Armyworm 5. Cutworms
B.	Number of acres[a] produced (From CRS)	No.	1,457,000
C.	Average yield per acre[a] (From CRS)	Units/	31 Bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	1.80
E.	Acres[a] needing control	No.	72,900 (5%)
F.	Acres[a] treated	No.	1,460 (.01%)
G.	Reduction due to not treating where needed:		71,440(E - F)
	H. Loss in yield, percent	%	8
	I. Loss in yield, units per acre[a], C x H	Units/	2.48 Bu.
	J. Loss in yield, $ per acre[a], D x I	$/	4.46
	K. Loss in quality, $ per --[a]	$/	--
L.	Yield loss for all acres[a], (E-F) x I	Units	177,171 Bu.
M.	Control cost, $ per acre[a]	$/	2.00
N.	Control cost for all acres[a], F x M	$	2,920
O.	Yield loss for all acres[a], (E-F) x J	$	318,520
P.	Quality loss for all --[a], (E-F) x K	$	--
Q.	Combined control cost and losses, N + O + P	$	321,440

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by William F. Lyon

Date 12/28/62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Hay (Commodity) IN Ohio (State or District) DURING 1961 (Year)

A. Pest or pest complex
1. Meadow spittlebug
2. Potato leafhopper
3. Lesser clover leaf weevil
4. Clover root borer
5. Pea aphid
6. Plant bugs
7. Grasshoppers
8. Clover leaf weevil
9. Sweet clover weevil
10. Alfalfa weevil

B.	Number of acres[a] produced (From CRS)	No. 1,999,000
C.	Average yield per acre[a] (From CRS)	Units/ 1.92 Tons
D.	Price[b] per unit (ton)[c] (From CRS)	$/ 22.00
E.	Acres[a] needing control	No. 699,700 (35%)
F.	Acres[a] treated	No. 399,800 (20%)
G.	Reduction due to not treating where needed:	299,900 (E - F)
	H. Loss in yield, percent	% 20%
	I. Loss in yield, units per acre[a], C x H	Units/ .38 Ton
	J. Loss in yield, $ per acre[a], D x I	$/ 8.36
	K. Loss in quality, $ per --[a]	$/ --
L.	Yield loss for all acres[a], (E-F) x I	Units 113,962 Tons
M.	Control cost, $ per acre[a]	$/ 2.80
N.	Control cost for all acres[a], F x M	$ 1,119,400
O.	Yield loss for all acres[a], (E-F) x J	$ 2,507,160
P.	Quality loss for all --[a], (E-F) x K	$ --
Q.	Combined control cost and losses, N + O + P	$ 3,626,560

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by William F. Lyon

Date 12/28/62

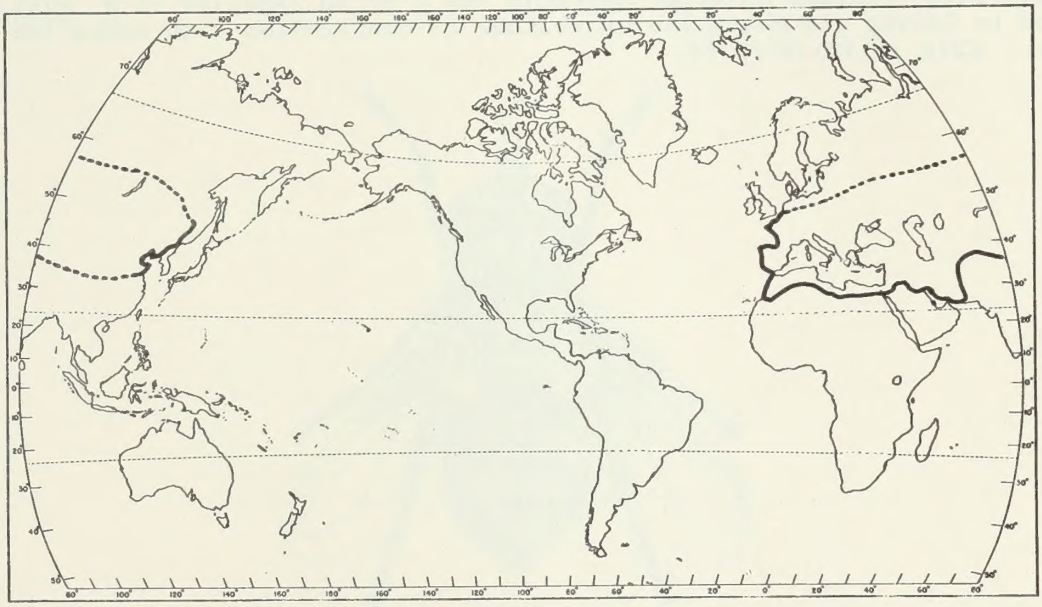
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A SPOTTED FLESH FLY (*Wohlfahrtia magnifica* (Schiner))

Economic Importance: This sarcophagid is regarded as a specific myiasis-producing fly of considerable importance in areas of southern Europe, the Middle East and north Africa. It attacks both man and animals. The females of this species are attracted to larviposit in sores, cuts, wounds, sore eyes, a diseased nose, ear, vagina and also in soiled wool, but larvae never penetrate the digestive organs and are not known to cause myiasis of the digestive tract.

Man is frequently attacked in areas where a nomadic life is the custom. People in this type of environment expose themselves to attacks of the parasite. It is dangerous to sleep out-of-doors between 10 a.m. and 4 p.m. in the summer months in areas inhabited by the fly. In man, the nose, eyes and ears are most frequently attacked. Deafness may result from auditory myiasis and destruction of tissue in the nasal regions is often quite severe, with death being the result in some cases. Myiasis of the eyeball may result in the complete destruction of that organ. The larvae may also deeply penetrate into thick muscles and damage them severely.

In animals, myiasis is particularly common during the summer when even the smallest wound will become infested. The pest is particularly dangerous to cattle during epizootics such as foot and mouth disease.



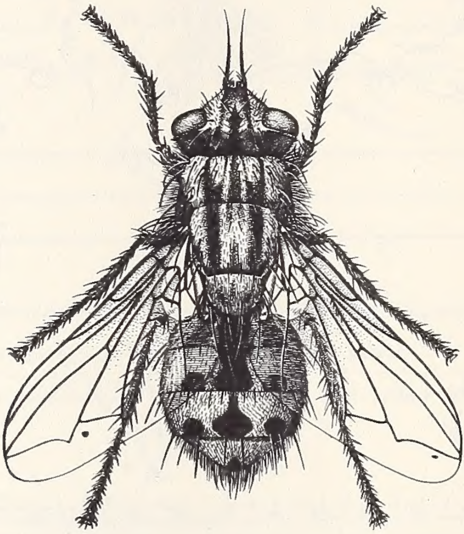
General Distribution of *Wohlfahrtia magnifica* (Schiner)

Distribution: Widely distributed in southern Europe, north Africa, Near East and the Asiatic portion of the U.S.S.R., and extends to Manchuria, Mongolia and China in the Far East. James (1) also records the species in Natal, Republic of South Africa. The species is apparently not known to occur in England, Netherlands, Scandinavia, Finland and the northern part of the U.S.S.R.

Hosts: Attacks man and many wild and domestic animals, i.e., horses, cattle, sheep, swine, dogs and fowl, particularly geese.

Life History and Habits: The adults of this species rarely enter buildings, but frequent fields, orchards and other open places. Females are flower feeders until they become sexually mature. They like warmth and light, therefore they do not fly during early morning and late evening hours, or in dark, gloomy weather. Each female, after mating, will deposit from 124 to 169 larvae which burrow into the tissue and molt in 2 or 3 days. The third-stage larvae become full grown in another 3 to 4 days, then crawl out of the wound to pupate. Larvae are relatively large and extremely hardy. The reproductive potential of the species is great; numerous generations are produced annually.

Description: ADULT - Antennae black, at most the apex of the second segment being yellowish or reddish; third segment half again to twice as long as the second; arista short-pubescent. Palpi black. Eyes broadly separated in both sexes, more so in the female than in the male. Radial vein 1 of wing is bare. Lateral abdominal spots rounded and well defined; median spots on first 3 segments each reach base of respective segment, forming a connected band; fourth segment has 3 small spots at apex. Length 10 mm. or 3/8 of an inch. LARVA - Anterior end tapers strongly from middle toward front; general form much more robust than in *Sarcophaga* larvae. Posterior end truncate, spiracles being located in a pronounced depression or posterior cavity; above and below cavity are 12 tubercles. Anal area on posterior face of last apparent segment or enlarged area. Prominent spinous areas present. Spines coarser than in *Wohlfahrtia vigil* (Walker), a North American species. Also, anterior spiracle has 5 or 6 papillae, whereas anterior spiracle has 9 or 10 papillae in *W. vigil* (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 13(12):3-22-63.



Adult Female of *Wohlfahrtia magnifica* (Schiner)

Major references: 1. James, M. T. 1947, U. S. Dept. Agr. Misc. Pub. 631:36-39. 2. Neveu-Lemaire, M. 1938. Traité d'Entomologie Médicale et Vétérinaire. pp. 840-841, Paris. 3. Patton, W. S. and Evans, A. M. 1929. Insects, Ticks, Mites and Venomous Animals of Medical and Veterinary Importance. Part I. Medical. pp. 452-493, Croydon, England. 4. Portchinsky, I. A. 1916. Bur. Ent. Sci. Com. Min. Agr. Mem. (Petrograd) 11(9):1-108. In Rus.

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